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ABSTRACT

The degree to which Fresno City College (California) is meeting the curricular needs of its students is examined in this study of 234 students and 26 faculty. An analysis of student preferences toward 20 selected learning modes is compared to the amount of time which faculty devote to each. High correlation between preference and practice exists in the use of demonstrations, slides, discussion, small groups, tutorials, and programmed materials, while wide discrepancies occur in the areas of laboratory time, lecture method, homework, flexible course length, attendance options, and the availability of a modular calendar. Whereas faculty report that homework and lectures are the prime methods of instruction, students ranked these 15th and 20th, respectively. In addition, the student survey revealed a strong desire for greater flexibility both in the time spent in class and the length of the calendar; however, faculty rated these areas quite low. It is recommended that faculty be made aware of these discrepancies and be provided with incentives to modify their approaches to learning. A review of the literature dealing with faculty resistance to innovation is undertaken and survey instruments are included. (LO)

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AN ASSESSMENT AND ANALYSIS OF SELECTED LEARNING MODES PREFERRED BY STUDENTS AND OFFERED BY TEACHERS

by

Richard R. Gibbs, M. A.

A PRACTICUM PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF EDUCATION

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CHAPTER I: STATEMENT OF THE PROBLEM

The Problem

This practicum assesses selected modes of learning (Herrscher, 1971) preferred by students and the frequency that these same modes are offered by teachers at Fresno City College. Significant discrepancies are found to exist between the preferred and offered frequency in six of twenty learning modalities selected for this study at Fresno City College. This discrepancy between preferred and offered learning modes is a problem through its potential for negatively affecting student learning performance.

The problem of this discrepancy in expectations appears to be of particular importance for the non-traditional community college student. Where conflicting expectations exist between preferred and offered learning experience, so may there be latent and even overt hostility which leads to diminished motivation and reduced learning performance.

The Significance

The research of this practicum delineates specific discrepancies between preferred and offered modes of learning. These discrepancies lead to inferences which would require research going well beyond the scope of this practicum. Yet the findings of this practicum alone are significant because they verify certain discrepancies between learning practices or offerings of teachers and certain learning experience preferences of students.

Given the growing public concern for developing more means of instructional effectiveness and accountability, research is indeed justified which focuses on students and their learning needs in terms of preferences as to modes of instruction. Large sums of tax money are being spent on community college education in California and across the nation to provide an "open door" opportunity to a largely "non-traditional" college student population. Common observation and statistical evidence verify the extent to which these students are entering the various community colleges. But this growth has been and is presently accompanied by a very large and continuing exodus of these same students (Cohen, 1970) and (O'Banion, 1974). When they aren't complete dropouts, they are often irregular attenders and poor achievers (Grady, 1975). Such attrition and performance rates, in light of the vast expenditures involved, further underwrite the need for an assessment and analysis of this aspect of curriculum and instruction.

Herrscher (1971) has pointed to:

> The national commitment to equality of higher educational opportunity and to accountability for student learning has created many complex problems, at the center of which is the need for significant modifications in traditional methods of college-level instruction. Sweeping changes in instructional methodology are necessary to accommodate not only the educational aspirations, but the fundamental and pervasive learning problems of large and growing segments of college populations which are obviously not composed of traditional college-level students.

If sweeping modality changes are needed to improve instruction and learning as Herrscher contends, then this practicum may be seen and justified as an assessment and analysis to

more precisely determine which modes of learning students prefer among those offered by community college teachers.

In undertaking to determine the extent of discrepancies between preferred and offered modes of learning at Fresno City College use has been made of Herrscher's modal categories. Chapter Three treats the data of the surveys. See Appendixes A and B to this practicum for samples of the survey instruments.

CHAPTER II: REVIEW OF THE LITERATURE

Data on Preferred vs Offered Modes of Instruction

In a survey of literature in which this researcher reviewed ERIC, the Reader's Guide to Periodical Literature, as well as other materials available at California State University at Fresno there was virtually no data specifically focusing on an assessment or analysis of selected learning modes preferred by students and offered by teachers. Taken alone this could be viewed as sufficient justification for doing the research which follows in Chapter Three of this practicum. However, this practicum writer has undertaken a brief review of some of the related literature.

This review will cover some of the periodical literature of the past few years which deals with various learning modalities. The review will analyze the literature with a view to giving evidence to support the need for the survey of selected learning modes preferred by students and offered by teachers at Fresno City College.

The Review of Related Literature

If students prefer certain modes of learning over others, as the survey data in Chapter Three shows, a significant question arises. Why do community college instructors resist adopting modes of learning preferred by students? This question is especially relevant to use of the newer technologies in learning.

Leslie Purdy (1975) has completed a study which deals with the above question. Some educators express the opinion

that faculty are inherently resistant to any teaching mode which would be new to them, whether it uses technology or not. Purdy rejects this as too simplistic. Such a view he maintains merely stifles productive discussion and research on the process of teaching and learning.

Purdy holds to the view that the institutional atmosphere has great influence on faculty response to the introduction of innovations. He feels that we should look at institutional supports for or constraints on changed practices of learning and instruction. Reactions to newer modalities may differ according to a teacher's age, his discipline or personal values.

Some teachers respond differently to teaching methods using technological devices when compared to non-technological modes. As a result of a study of 225 teachers using modes of learning ranging from audio-tutorial through lecture, Purdy found that two basic ideas or attitudes emerged among faculty at the community college studied. The first is the idea that teaching is a solo activity rather than one that is shared or done in concert with other teachers. The second is that in order to teach the instructor must have control over the learning environment. These two basic faculty perspectives toward teaching have immense implications for varying the modes of learning to be offered.

According to the Purdy study the feeling among faculty at the college level is that teaching is also a lonely activity. What will go on in a course is seen essentially as being a personal matter and as an individual challenge. Such a private

view of teaching is often held by teachers using the lecture method. The attitude that teaching is a private challenge may be a requirement of the teacher for ego satisfaction which can only come from student direct and continuous attention. Instructors who feel such a need will hesitate to send students on field trips, to media centers, to do independent study, and to offer other variations in modes of learning. To this mental set any modal variations from the traditional will not constitute teaching because they cannot see, feel or know intuitively what heppens to the students in those other situations. Thus, Purdy sees the solo view of the education process as a major stumbling block to any change from modes teachers offer to modes that students may prefer.

Closely related to the solo practitioner theme is the need of teachers to control the learning situation as completely as possible. The problem for college teachers is to find ways to ensure that the student learns what the teacher considers important. According to the Purdy study most teachers know precisely <u>what</u> they want to teach, but <u>how</u> to teach it so that it is learned is the problem. Any modes which move away from the traditional are seen as a threat to teacher control over what is learned. Another group of teachers in the study relied on a wide variety of teaching modes as a means of extending the number of ways the learning situation could be managed. Thus the same end is achieved through varying the means. Some teachers use modes which lessen the need for personal exposure and vulnerability to students. Faculty who were uncomfortable

lecturing found it easier to devise computer and slide and tape programs to avoid such student-teacher contact.

Faculty members find many ways to express their need for control. Some teachers feel they have control only when they have a classroom with four walls, thirty students, chalk and a blackboard. These elements are predictable and dependable when coupled with the teacher's own performance. Little can break down. When it does, the teacher can still manage. Some have learned to use the newer modalities, only to have them breakdown or be inaccessible when needed, leaving them vulnerable to humiliation in front of students.

A closer look at groups of faculty tends to show some of the variations in need for command of the learning process. One group of faculty examined in the Purdy study felt more comfortable with traditional modes of instruction and relied on force of personalityto direct the learning situation. The fewer intervening objects between the student-teacher relationship, the better. The larger the class, the less possible it is to personally control the group. Teachers in this category also often expressed fear that new teaching modes would replace them, and believe that technology is generally a hindrance in the learning process.

Thus, for these groups of teachers, being able to manage and direct the learning situation is of crucial importance. For one group, personal control guaranteed order and the self-respect necessary to function as a teacher. In another group using modal variations in instruction, the motivation appeared

to be the added security of a barrier placed between the student and a vulnerable teacher.

If a sense of anxiety exists on some school campuses concerning use of an expanded variety of learning modes, perhaps it is in part due to a feeling of pressure exerted by school administrators and others. Media people, industry representatives and others, in their anxiousness to encourage teachers to try campus learning innovations have at times oversold them. Education has not been immune to slick packaging of a sample finished product. Faculty who get intrigued and then humiliated or at least frustrated in their efforts to emulate results of the media experts, share their sour grapes with their peers. In the most crass atmosphere there have even been colleges wherein there has developed the attitude and the feeling among faculty that the college cannot afford not to have the newer modes of instruction used. Cost-effectiveness becomes the paramount concern at the expense of truly effective learning. Such a dollar conscious attitude on the part of the administration is a negative influence to many faculty whose reaction is often a blend of fear for their position (technological obsolescence) and the attitude that they as teachers know intuitively what modes to offer students. Student preferences as to modes are only to be marginally considered, if at all, because students simply don't have the knowledge to select those modes which will impart the knowledge already acquired by those in a position to do the imparting.

In reviewing articles from the late 1968 through 1975 this writer found on the subject of instructional modes that much of the concern of the time was not students preferences as to modes of instruction, but whether changing modes of learning would result in teachers being replaced by machines. There has also been concern as to whether the newer modes would dehumanize a whole new generation of students. Wilson (1968) reassures teachers that the newer modes of instruction will not make problems by causing educational unemployment. However, in the middle 1970s the issue of teacher unemployment has emerged as a problem, though not necessarily brought on by teachers adopting newer learning modes. Jennings (1968) takes the position that the newer modes of learning depersonalize the education process and thus dehumanize the students. In this sense school merely mirror a depersonalized, dehumanized society which has been brought on by technology. The schools thus contribute to a vicious self-fulfilling prophesy.

In all of this Jennings does not ask the students how they feel about various modes of learning. Student preferences are assumed to run to those experiences which include increased interpersonal relationships with teachers and peers, something which Jennings feels does not occur extensively with the newer variations in modes of learning. Yet he feels that students should be confused or perplexed by dialogue with other students and teachers. But, unless the newer modes are isolated from all stimulii excepting that which is desirable for eliciting anticipated responses, Jennings' concern

here seems aimed at B. F. Skinner (1968) and the technologies which he and others have developed for learning. This focus on technical devices as innovations in modes of learning is of course quite narrow and shares some of the continuing fears associated with learning when viewed from this behavioristic approach.

What Jennings does not focus on is some of the non-isolating and relationship enhancing modes of learning which become possible through field trips, demonstrations, role playing, tutoring and other activities that are the object of this research. These disadvantages are overcome in the research survey instrument developed for this practicum.

The questionnaire for this practicum has been designed to indicate student preferences as to selected modes of learning which provide for a wide variety of academic performance based experiences, which at the same time enhance interpersonal relationships and also the chances of a humanizing educational experience.

West (1968) and McKeachie (1971) discuss the lecture form as a mode of learning. Since the lecture is the most commonly used form (See Table 3 . 2), and since it is also likely that teachers will continue to use the form, West feels it is wise to work with the lecture mode to maximize its potential for learning. Both West and McKeachie feel that the lecture is ineffective because students are not involved. This lack of student involvement is most lecture situations is supported also be the findings of Kowilsky (1971). His analyses indicate

that less learning occurs in the classroom in which "teacher talk" proceeds in an uninterrupted sequence.

West discusses the lecture method as functioning at three levels. At the first level "exposure" to the material may be seen as all that is essential. At the second level "understanding" is evidenced by their being few if any questions on the part of students. At neither of these levels is there any student involvement. Only at the "discoursing" level are students involved. Interaction is encouraged in this third model variation of the lecture. Retention is possible over long periods of time by this means according to West. Ausubel (1960) advocates use of "advanced organizer" materials as a means of preparing students in a course in which the lecture mode is to be used. This modification tends to facilitate student involvement in the course. Such organizers as Ausubel describes act as mediators between what is previously known and what is to be learned.

Finally, in this review we focus on homework as a learning practice. Homework assignments are the most frequently offered learning practice at Fresno City College, based on the survey questionnaire (see Table 3 . 2). Shuman and Sublett (1970) support this with the finding that over eighty-three percent of secondary school teachers support giving homework as a means of learning. Yet they point to the vast evidence that non-traditional students simply do not benefit by homework as presently assigned. Students who come to the community college from the ghetto, from a low income situation, simply don't have

the facilities nor the support from parents or others to benefit by this mode of instruction. However, Shuman and Sublett do not dismiss homework as a useless mode. Rather, given its extensive use and the feeling among educators that homework is very essential, they advocate modifications to homework assignments to make them relevant to the experiences of the non-traditional student.

CHAPTER THREE: PRESENTATION OF THE DATA

Design of the Survey Instrument

This practicum research required that a survey instrument be developed which would measure preferred and offered modes of instruction at Fresno City College. A survey questionnaire was designed which utilized the modal categories developed by Herrscher as well as certain adaptations from Kihns and Marterana (1974). These modes include four general categories (environmental, pictorial, symbolic and verbal), with each category containing specific media sub-categories to give a total of twenty modes of learning whereby student preferences and teacher offerings may be discerned. The student instrument permitted responses in which students ranked on a one to five scale (five being high) their preference as to learning modes. A variation of the same instrument permitted teachers to respond with the amount of time (one to five scale) offered in each modal category. See the Appendix for samples of the survey instruments.

In designing the instrument to survey faculty and students, rough drafts were made and submitted to associate consultants in education. Their assistance in a preliminary review effort was most valuable in the development of the final instrument. Professional persons included were:

a) Gerald Bill, M.A., Computer Systems Consultant and Sociologist.

b) Daniel Grady, M.A., Guidance Consultant/Psychologist. Assistant Professor, California State University, Fresno.

A field test using the preliminary draft instrument was made by

administering the survey questionnaire to four associate instructors and to one class of twenty-one students. Results and impressions derived from this limited testing and follow-up analysis produced a refined questionnaire by a repositioning of item groupings for more valid presentation, as well as item analysis to reduce ambiguity and overlap. This resulted in increased questionnaire validity.

In the case of the student questionnaire students were asked to indicate their preference as to modes of instruction by circling the number one (1) where there was a very low preference for a selected learning mode. They were asked to circle the number five (5) where they had a very high preference for a selected learning mode. Thus the range of the scale was one through five. If students had not experienced a particular mode of instruction, they were permitted to circle a "DK" (don't knew) category, although they might state a preference even without direct experience with a selected mode.

In the case of the faculty questionnaire the modes offered were identical to these preferred on the student questionnaire. A scale of one through five was provided wherein faculty "rarely or never using" a selected mode of instruction would respond by circling the number one (1), while a mode which was "used alot" would be rated by circling the number five.(5). Thus the range from low to high was again one through five.

Statistical Treatment

When this practicum was originally conceived it was not at once clear what statistical tests would be most suited to

the task. The proposal submitted to Nova University contained two tentative projections on the statistical techniques needed for treating the data. As approved by Nova the proposal included analysis of the data by use of Spearman's coefficient of rank-order correlation and a Chi Square (Barton, 1973). The Spearman method proved to be the more appropriate for handling the data. Given the identical faculty-student questionnaires containing 20 paired modes of learning preferred and offered at Fresno City College, a rank ordering permitted a comparison of each selected paired mode as to the rank order offering by faculty of selected modes of learning, as well as the rank order preference by students of selected modes of learning. The extent to which congruence or discrepancy in rank-order preference, as compared with rank-order offerings, thus could be ascertained. This has been developed in the graphic and tabular presentations of data which follow in this chapter.

Data Collection Procedures

The faculty population for this research consisted of one hundred percent returns obtained from surveying 26 members of the full-time instructional staff at Fresno City College. The names were obtained by use of a current list of faculty which now totals 209 full-time staff members. A table of random numbers was used in obtaining the twenty-six names of staff participants. Follow-up calls were made in the successful effort to achieve perfect returns.

The student population surveyed for this practicum were

234 full and part-time students from the teaching load of this writer, as well as from divisions other than social sciences where teacher cooperation was obtained.

Within each class the questionnaire was distributed to participating students by this writer. Students were given an opportunity to question this surveyor for purposes of clarification of questions after first reading the questions to the participants. The questionnaires were returned directly to this writer upon completion of the survey.

Presentation and Analysis of the Data

The following data represent the results of the above described survey instruments used to assess and analyze selected learning modes preferred by students and offered by teachers at Fresno City College. For both the student and the faculty questionnaire, mean scores were calculated for each of the twenty modes of instruction. The modes of instruction were then arranged in rank order for each group, and are presented in Table 3 . 1 (Student Preferences) and Table 3 . 2 (Faculty Offerings). The presentation utilizes the Spearman Coefficient of Rank-Order Correlation as a means of ascertaining discrepancies in preferred and offered modes of community college instruction.

The reader should note that the null hypothesis as stated in the practicum proposal cannot be rejected on the basis of the data gathered from the survey when analyzed only in terms of aggregates. This is the conclusion with both the Spearman analysis and a Chi Square (See Appendix C for the use of Chi

Square). However, the null hypothesis deals only with aggregate statistical discrepancy possibilities between modes of learning preferred by students and these same modes as offered by teachers at Fresno City College. Thus, while the results of the Spearmen show a .017 correlation, and the results of a Chi Square show a calculated x^2 at .8 - far too low to be significant at the .05 level - an item analysis of rank-order listings yields additional information of significance in the opinion of this writer. These data are presented and analyzed on the pages which follow in this chapter.

Table 3 . 1 RESULTS OF THE STUDENT QUESTIONNAIRE:PREFERENCES OF STUDENTS

Rank	Mode	Mean Score
(Preferred Most) 1	Demonstrations	4.135
2	Motion Pictures	4.031
3	Attendance Options	3.915
4	Flexible Course Length	3.894
5	Field Trips	3.837
6	Slides	3.723
7	Discussion	3.517
8	Modular Calendar	3.378
9	Maps and Charts	3.356
10	Small Group Work	3.355
11	Tutorial	3.341
12	Learning Contracts	3.170
13	Programmed Materials	3.168
14	Laboratory	3.119
15	Homework	3.008
16	Weekend Courses	3.000
17	Games	2.887
18	Role Playing	2.747
19	Audio Records	2.773
20 (Preferred Least)	Lecture	2.185

Table 3 . 2 RESULTS OF THE FACULTY QUESTIONNAIRE:OFFERINGS OF FACULTY

Rank	Mode	Mean Score
(Offered Most) 1	Homework	4.076
2	Lecture	4.038
3	Demonstrations	3.923
* 4	Laboratory	3.846
* 5	Maps and Charts	3.846
* 6	Discussion	3.846
7	Slides	3.565
8	Motion Pictures	3.307
9	Tutorial	3.076
10	Small Group Work	2.846
11	Field Trips	2.538
12	Games	2.500
13	Programmed Materials	2.346
14	Role Playing	2.269
15	Learning Contracts	1.923
16	Audio Records	1.884
17	Flexible Course Length	1.857
18	Attendance Options	1.692
19	Weekend Courses	1.115
20 (Offered Least)	Modular Calendar	1.000

* Three-way tie

Table 3 . 3 Spearman Coefficient of Rank-Order Correlation Data

The Data: Preferred and Offered Modes of Instruction

Tendency to:
■ Discrepancy *
● Agreement **

Mode Item	Student Preferred Rank Order	Teacher Offered Rank Order	Difference	Difference^2
1. Field Trips	5	11	-6	36
2. Demonstrations	1	3	-2	4
3. Role Playing	18	14	4	16
4. Games	17	12	5	25
5. Laboratory	14	5	9	81
6. Slides	6	7	-1	1
7. Motion Pictures	2	8	-6	36
8. Maps, Charts	9	5	4	16
9. Audio Records	19	16	3	9
10. Lecture	20	2	18	324
11. Discussion	7	5	2	4
12. Small Group	10	10	0	0
13. Homework	15	1	14	196
14. Programmed Mat.	13	13	0	0
15. Tutorial	11	9	2	4
16. Flexible Length	4	17	-13	169
17. Attendance Options	3	18	-15	225
18. Learning Contracts	12	15	-3	9
19. Modular Calendar	8	20	-12	144
20. Weekend Courses	16	19	-3	9
				(1308)

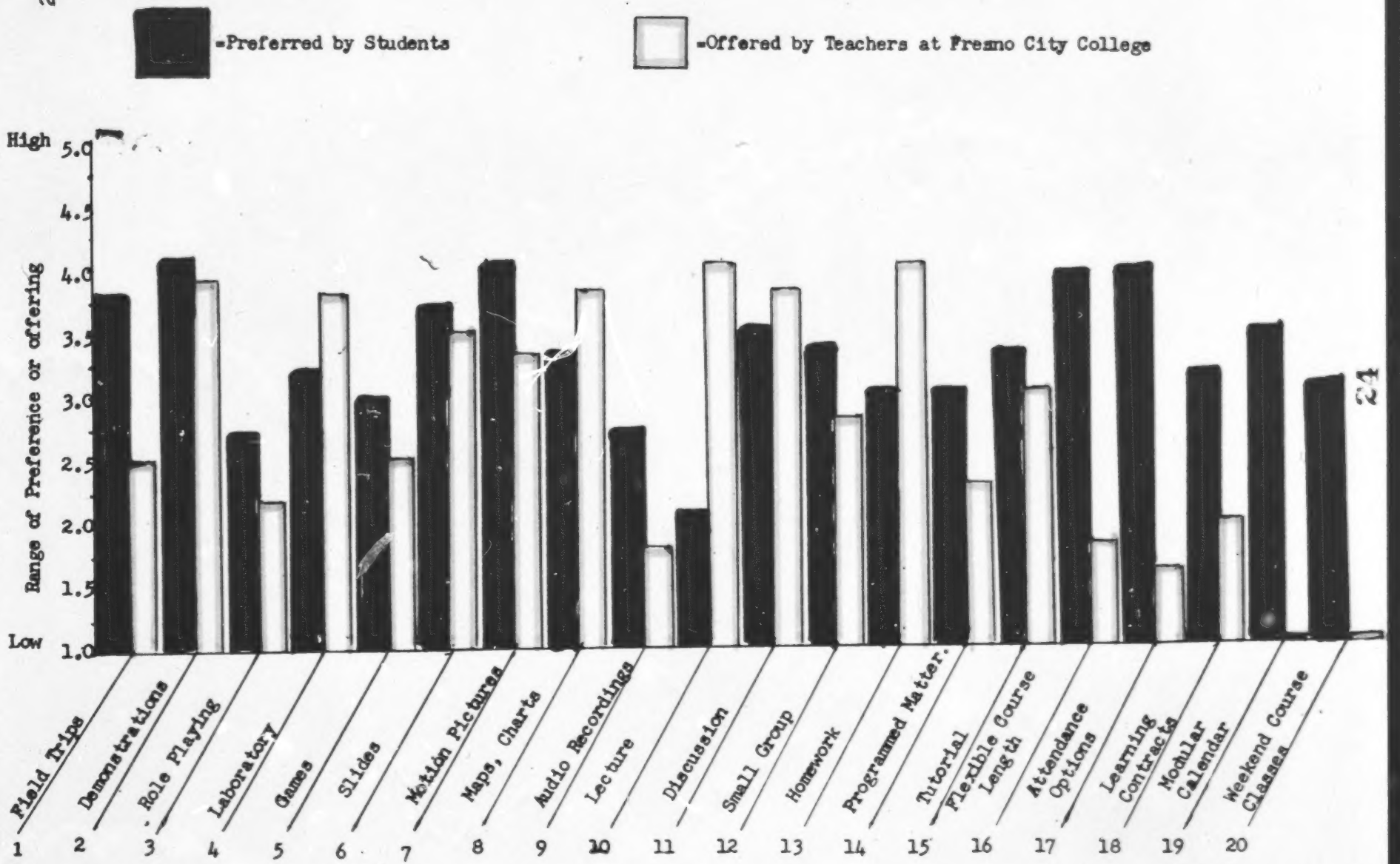
$$r_s = \frac{6 \sum_{i=1}^{N} D^2}{N(N^2-1)} \longrightarrow r_s = 1 - \frac{6(1308)}{20(399)}$$

$$r_s = 1 - \frac{7848}{7980} \longrightarrow r_s = 1 - .983 \longrightarrow r_s = .017$$

* "Discrepancy" here means that the student and faculty rankings of the item differed by at least nine(9) places.

** "Agreement" means that the difference was no greater than two(2) places.

Figure 3 . 1 Graphic Analysis of Modes of Learning Preferred by Students and Offered by Teachers



CHAPTER IV: CONCLUSIONS AND RECOMMENDATIONS

Summary and Conclusions

It was pointed out that the stated null hypothesis cannot be rejected (.05 level of significance) on the basis of an analysis of the aggregate survey data only. However, significant additional information can be gained through an item analysis of the Herrscher and Mortorana learning modalities when selected modes preferred by students at Fresno City College are compared with modes offered by instructors at the same institution.

On the basis of an analysis of the questionnaire data using the Spearman method one may conclude that the learning modes, which are now in the program of learning at Fresno City College and were examined in this study, may effectively be placed in two groups: (a) those modes on which there is a high degree of agreement between student preferences and faculty offerings (six modes), and (b) those modes of instruction with a high degree of discrepancy between student preferences and faculty offerings (six modes). The remaining eight modes fell somewhere between these two groups.

The areas of agreement on the modes of instruction include use of demonstrations, slides, discussion, small group work, programmed materials and tutoring. From an institutional viewpoint these areas of agreement may be seen to reflect positively Fresno City College's ability to develop and to use modes of learning in the curriculum which correspond to the preferences of the students. In the case

of the demonstration mode we see from the item analysis a high (ranked first) student preference for this mode of learning while teachers offer this mode frequently (ranked third). In the case of the programmed materials mode we see from the item analysis a low preference on the part of students and a low offering on the part of instructors, both ranking it thirteenth - or perfect agreement.

The areas of discrepancy on the modes of learning preferred and offered yield perhaps the most interesting and significant information, and as such are the basis for certain recommendations which are made below. These discrepancy areas include laboratory, lecture, homework, flexible course length, various attendance options and the modular calendar.

In the case of lecture we see from the item analysis that it takes last place (ranked twentieth) among student preferences, while it is the second most offered mode of instruction at Fresno City College. Homework is the most frequently offered mode of instruction at Fresno City College, while it ranks fifteenth on the list of student preferences. Students have a high preference for flexible course length (ranked fourth) and flexible attendance options (ranked third). Yet these are ranked seventeenth and eighteenth respectively in the frequency in which they are offered by teachers. The reader is urged to review the tabular and graphic analyses provided in Chapter Three.

Recommendations

From an institutional viewpoint the above areas of discrepancy reflect negatively upon the willingness and/or ability of Fresno City College to meet the needs of students through learning experiences which would correspond to the modes preferred by students. Therefore the following general recommendation is made:

> The work of this practicum points up the need for further institutional research which would determine the effects on student learning performance when significant discrepancies exist between preferred and offered modes of learning.

The following specific recommendations are made:

Changes in modes of learning offered at Fresno City College in those areas of highest discrepancy, especially in the areas of lecture and homework. Modification should be along the lines described in the review of literature in Chapter Two of this practicum.

Lecture, ranked twentieth by students, may be improved by incorporating more demonstration, ranked first, more films ranked second, and more discussion, ranked seventh. Teachers should be encouraged to modify the lecture method to include these. In-service training sessions developed by the Committee on Professional Growth and Development can facilitate these needed changes. This practicum is being given to the chairperson of that committee, Charles Lynes.

Homework is clearly not preferred by students, being ranked fifteenth in the study. However, instructors at Fresno City College offer homework as the most frequently used reinforcing mode of learning included in this study. Yet, the evidence of this study and of other researchers is that homework is unlikely to be abandoned. Therefore, it is recommended that instructors improve this mode by possibly combining, for example, the fieldtrip, ranked fifth by students, with the concept of homework assignments. And increasingly instructors should begin developing individualized learning modules that utilize media center modalities which rank high with the students, abandoning the homework concept as necessary to improved learning.

Time as a mode: Attendance options, ranked third, flexible course length, ranked fourth, and the modular calendar, ranked eighth by students are preferences of students that warrant more consideration by the Institution. Specifically it is recommended that the curriculum of Fresno City College include more options for students providing for shorter courses, with a greater variety of attendance options, and possibly for a curricular experiment which allows the student to take a single course and be considered a fulltime student. A copy of this practicum has been submitted to the Committee on Curriculum, and oral presentation of these data are to be made at meetings in the Fall of 1975. Also, a copies of this practicum will be made available to the President of Fresno City College, and to the Assistant Superintendent of the District, who chairs the Educational Coordinating and Planning Committee.

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APPENDIX A.

FRESNO CITY COLLEGE STUDENT QUESTIONNAIRE

"An assessment of Modes of Instruction Preferred by Students and Offered by Teachers"

Please indicate your preference as to the following modes of instruction. Circle the number one (1) if you have a very low preference for this mode of instruction. Circle the number five (5) if you have a very high preference for this mode of instruction. If you have not experienced a particular mode of instruction you may circle "DK" for "don't know," although you may state a preference.

MODE	SCALE OF PREFERENCE low				high	don't know
ENVIRONMENTAL						
1. Field trips	1	2	3	4	5	DK
2. Demonstrations	1	2	3	4	5	DK
3. Role playing (by teacher/students)	1	2	3	4	5	DK
4. Games and simulations by teachers	1	2	3	4	5	DK
5. Laboratory work	1	2	3	4	5	DK
PICTORAL						
6. Picture/slides	1	2	3	4	5	DK
7. Motion pictures/TV	1	2	3	4	5	DK
SYMBOLIC						
8. Maps, charts, diagrams	1	2	3	4	5	DK
VERBAL						
9. Audio recordings (in class) . . .	1	2	3	4	5	DK
10. Lecture (with student notetaking and testing, with little or no discussion	1	2	3	4	5	DK
11. Discussion (questions posed for student response in class) . . .	1	2	3	4	5	DK
12. Small group work (group projects and research done in class primarily)	1	2	3	4	5	DK
13. Text and other reading assignments done in class and at home .	1	2	3	4	5	DK

MODE	SCALE OF PREFERENCE low				high	don't know
VERBAL (Continued)						
14. Programmed textual and other reading materials which have questions and answers combined	1	2	3	4	5	DK
15. Tutorial (teacher individualized instruction in class and office)	1	2	3	4	5	DK
TIME VARIATION						
16. Flexible course length (one to 18 weeks, etc.)	1	2	3	4	5	DK
17. Class attendance options (choice of different lecture attendance times)	1	2	3	4	5	DK
18. Learning contracts (agreement on grade before undertaking the required work tasks). . . .	1	2	3	4	5	DK
19. "Modular calendar" (where students take only one course as a full load for a shorter time period)	1	2	3	4	5	DK
20. Weekend courses lasting one or more weeks for varying amounts of credit	1	2	3	4	5	DK

APPENDIX B.

FRESNO CITY COLLEGE FACULTY QUESTIONNAIRE

SUBJECT: "An Assessment of Modes of Instruction Offered by Faculty"

I would like to find out how much use you make of different instructional modes. Please circle the number five (5) if you use that mode of instruction alot; or circle the number one (1) if you use that mode rarely or never.

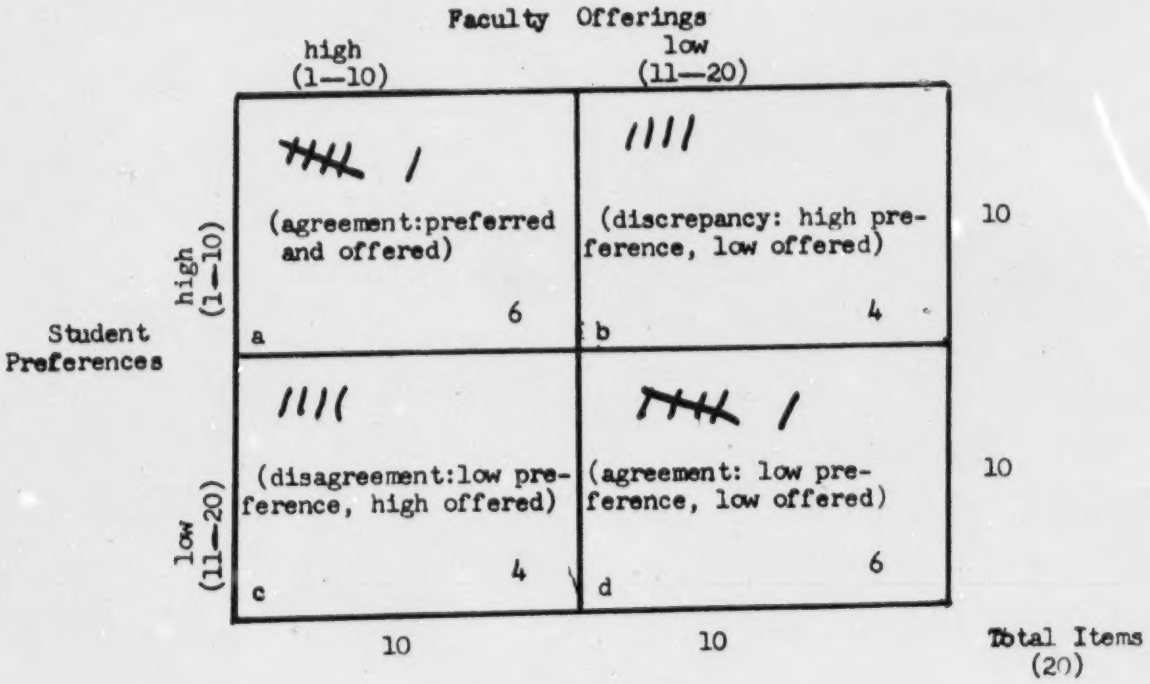
MODE	SCALE OF USE				
ENVIRONMENTAL	rarely or never used				used alot
1. Field trips	1	2	3	4	5
2. Demonstrations.	1	2	3	4	5
3. Role playing by teacher/students	1	2	3	4	5
4. Games and simulations by teachers	1	2	3	4	5
5. Laboratory work	1	2	3	4	5
PICTORAL					
6. Pictures/slides	1	2	3	4	5
7. Motion pictures/TV	1	2	3	4	5
SYMBOLIC					
8. Maps, charts, diagrams	1	2	3	4	5
VERBAL					
9. Audio recordings (in class) . . .	1	2	3	4	5
10. Lecture (with little or no discussion	1	2	3	4	5
11. Discussion (questions posed for student response in class) . . .	1	2	3	4	5
12. Small group work (group projects and research, results shared in class	1	2	3	4	5
13. Text and other reading assignments done in class and at home .	1	2	3	4	5
14. Programmed textual and other reading materials which have questions and answers combined	1	2	3	4	5

MODE	SCALE OF USE				
VERBAL (Continued)	rarely or never used				used al ot
15. Tutorial (teacher individualized instruction in class and office)	1	2	3	4	5
TIME VARIATION					
16. Flexible course length one to 18 weeks, etc	1	2	3	4	5
17. Class attendance options (choice of different lecture attendance times)	1	2	3	4	5
18. Learning contracts (agreement on grade before undertaking the required work tasks)	1	2	3	4	5
19. "Modular calendar" (where students take only one course as a full load for a shorter time period).	1	2	3	4	5
20. Weekend courses lasting one or more weeks for varying amounts of credit	1	2	3	4	5

APPENDIX C.

CHI SQUARE ANALYSIS

SELECTED LEARNING MODES PREFERRED BY STUDENTS AND OFFERED BY TEACHERS



$$X^2 = \Sigma \left(\frac{(fo - fe)^2}{fe} \right)$$

Needed X^2 (.05 level) is 3.841

Calculated $X^2 = .8$

Not Significant

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LOS ANGELES
OCT 3 1 1975
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